WISCONSIN
DEPT. OF NATURAL RESOURCES

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Tommy G. Thompson, Governor
George E. Meyer, Secretary
Ron Kazmierczak, Regional Director

Northeast Region Headquarters
Gren Bay Service Center
1125 N. Military Ave., P.O. Box 10448
Green Bay, Wisconsin 54307-0448
Telephone 920-492-5800
FAX 920-492-5913
TDD 920-492-5912

September 14, 2000

Mr. Donald Brisch
Rockwell Lime Company
4110 Rockwood Road
Manitowoc, WI 54220

FID # 436034390

SUBJECT: Letter of Inquiry

Dear Mr. Brisch:

Over the past 12 months, two businesses in Two Rivers, WI, have complained about deposition of particulate matter on their automobiles. Three samples of the deposited particulate were analyzed. The results of 2 analyses indicate the material is primarily unburned coke fuel particles. The third sample was identified primarily as calcite/dolomite. In Manitowoc county, only the Rockwell Lime Company and Manitowoc Public Utilities Columbus Street plants burn coke. Either facility may also emit calcite/dolomite dust. To help determine the source of the deposition, please review the analyses provided, and respond to the following questions.

The dust deposits were reported on a car parked at WTRW Incorporated. It is located at 1414 16th Street, Two Rivers. Deposits were also reported on several occasions on cars parked in the sales lot of T. R. Truck & Auto, located at 1618 16th Street, Two Rivers.

I collected the 3 samples on days following the deposition. The first two samples were taken from a car parked at WTRW Incorporated, and a car parked at T & R Auto. The particles were deposited between October 1-4, 1999. The third sample was taken from a car parked at T & R Auto and believed to have been deposited between May 6-7, 2000. Microscopic analyses of the 3 samples were performed by the State Laboratory of Hygiene. The results are attached.

1. Was the Rockwell Lime facility burning coke during any of the days when deposition was reported to have occured? Is so, provide the hours each day that coke was burned, and a copy of the baghouse parameters recorded.

2. Was the Rockwell Lime facility operating the quicklime or hydrated lime processes, or any other process that would emit "calcite/dolomite" between May 6-7, 2000? If so, please describe and provide the hours of operation for each.

3. On any of the dates given, could the material have come from the Rockwell Lime facility?

This request is made under section NR 439.03(1), Wis. Adm. Code. Please respond by September 22, 2000. If you have any questions I can be reached at 920/492-5794.

Sincerely,

James G. Crawford, P.E.
Environmental Engineer
Air Management

cc: ENF - AM/7
FAXED to Rockwell Lime @ 920/682-7972

WOHL Wisconsin Occupational Health Laboratory

Mail:
P.O. Box 7996
Madison, WI 53707-7996
Phone: (800) 446-0403

Packages:
2601 Agriculture Dr.
Madison, WI 53718
Fax: (608) 224-6213

Wisconsin State Laboratory of Hygiene

University of Wisconsin

November 5, 1999 6

JIM CRAWFORD
WI DNR AIR PROGRAM PARTICULATE
PO BOX 7921
MADISON WI 53703

MICROSCOPIC PARTICLE ID

Samples submitted for Microscopic Particle Identification and characterization are analyzed by mounting a portion of the sample on a glass slide in an appropriate dispersion staining oil and then examining the slide preparation by Polarized Light Microscopy. Particles are identified based on their unique optical properties such as refractive indices, sign of elongation, extinction angle, etc. Other properties such as morphology may also be used. Samples are also compared to known reference samples and published references. The percentages noted for each type of particle identified are, if appropriate, determined by visual area estimate using a calibrated reticle in the eyepiece of the microscope.

Further analysis utilizing Scanning Electron Microscopy and Electron Dispersive X-Ray analysis will be performed as deemed necessary.

John Knight Analyst

Lyle Reichmann, CIH Chemist Supervisor

Particle Identification Results

Customer: WI Dept. Natural Resources
Contact: Jim Crawford, WI DNR Air Mgmt Engineer

Project: **Dust residue collected on Mr. Heller's white car, Lic NEK-432**

Laboratory #s: 786737

General Description-

Dark gray colored atmospheric dust fallout collect from surface(s) of automobile using a personal business card as the collection medium.

Conclusions-

The sample residue consists of the following:

90%	unburned coked fuel particles: 10-20 μm diameter, opaque, black colored with a rough texture.
10%	iron oxide: red to reddish-orange color, opaque to transluscent, sugary texture.
10%	unfused flyash: white colored, transluscent, clouded by trapped air bubbles.
<1%	quartz: 2-5 μm diameter
<1%	fused glassy flyash spheres: black colored & white colored.
<1%	miscellaneous unidentified fungal spores & plant pollen.

If you have any further questions regarding the nature of these results, feel free to contact me at (902) 224-6222.

Sincerely,

John Knight

John Knight
Wisconsin Occupational Health Laboratory

Particle Identification Results

Customer: WI Dept. Natural Resources
Contact: Jim Crawford, WI DNR Air Mgmt Engineer

Project: **Dust residue collected on windshield of Black Mustang on TR Auto's Lot**

Laboratory #s: 786738

General Description-

Dark gray colored atmospheric dust fallout collect from surface(s) of automobile using a personal business card as the collection medium.

Conclusions-

The sample residue consists of the following:

75%	unburned coked fuel particles: 10-20 μm diameter, opaque, black colored with a rough texture.
5%	iron oxide: red to reddish-orange color, opaque to transluscent, sugary texture.
15%	unfused flyash: white colored, transluscent, clouded by trapped air bubbles.
5%	shredded plant fiber.
<1%	quartz: 2-5 μm diameter
<1%	fused glassy flyash spheres: black colored & white colored.
<1%	miscellaneous unidentified fungal spores & plant pollen.

If you have any further questions regarding the nature of these results, feel free to contact me at (902) 224-6222.

Sincerely,

John Knight

John Knight
Wisconsin Occupational Health Laboratory

WOHL Wisconsin Occupational Health Laboratory

P.O. Box 7996
Madison, WI 53707-7996
Phone: (800) 446-0403

Packages:
2601 Agriculture Dr.
Madison, WI 53718
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Wisconsin State Laboratory of Hygiene

University of Wisconsin

July 31, 2000 6

JAMES CRAWFORD
WIS DNR
1125 N MILITARY AVE
BOX 10448
GREEN BAY WI 54307-0448

MICROSCOPIC PARTICLE ID

Samples submitted for Microscopic Particle Identification and characterization are analyzed by mounting a portion of the sample on a glass slide in an appropriate dispersion staining oil and then examining the slide preparation by Polarized Light Microscopy. Particles are identified based on their unique optical properties such as refractive indices, sign of elongation, extinction angle, etc. Other properties such as morphology may also be used. Samples are also compared to known reference samples and published references. The percentages noted for each type of particle identified are, if appropriate, determined by visual area estimate using a calibrated reticle in the eyepiece of the microscope.

Further analysis utilizing Scanning Electron Microscopy and Electron Dispersive X-Ray analysis will be performed as deemed necessary.

John Knight Analyst

Steve Strebel Organic Supervisor

WOHL Wisconsin Occupational Health Laboratory

Mail
P.O. Box 7996
Madison, WI 53707-7996
Phone: (800) 446-0403

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2601 Agriculture Dr.
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Wisconsin State Laboratory of Hygiene

University of Wisconsin

July 31, 2000

Jim Crawford
Wisconsin Dept. Natural Resources
1125 N. Military Ave., Box 10448
Green Bay, WI 54307-0448

Dear Mr. Crawford;

Enclosed are the results for the sample you submitted for particle identification by our laboratory. The sample is for project: **Jon Matthias, 1618 16th St., Two Rivers, WI 54241**. If you have any questions, please feel free to contact me at: (608) 224-6222.

Sincerely,

John Knight

John Knight
Wisconsin Occupational Health Laboratory

Enclosure

WOHL Lab # 828830 (#1)

Sample is a light grayish-white colored granular dust collected from surfaces of automobiles. Sample consists of:

60%	Calcite/Dolomite (Calcium Carbonate/Calcium Magnesium Carbonate)
30%	Quartz sand
5%	Auto/diesel exhaust soot
3%	Rubber tire fragments
2%	Plant pollen (unidentified)
<1%	Plant stellate trichomes

John Knight 7-31-00

Word #LMD-00-02-002

DATE: Feb 2, 2000 File Code: 4530

STACK TEST REVIEW

Reviewed By: Joe Perez JP Test Date: 12/03/1999

Date Received: 01/21/2000 Witness: _____

Name of Source: Rockwell Lime Company FID #: 436034390

Address: 4110 Rockwood Rd. Stack #: S13A

City: Manitowoc, WI Process #: P38

Permit #: 99-JCH-139 Date Issued: 12/14/1999

Description of Source Tested: Quick Lime Pressure Hydrator

Description of Control Equipment: Wet Scrubber

Test Firm: RMC Environmental, Inc, - Elgin, IL

Crew Chief & Phone#: Ms Rachel Chleborowicz

Pollutant Tested: Particulate Test Method: M5+202 (backhalf)

Pollutant Tested: _____ Test Method: _____

Pollutant Tested: _____ Test Method: _____

Pollutant Tested: _____ Test Method: _____

Test Production Level: 14.0 Tons / Hr.

Rated Production Level: 20 Tons / Hr

Particulate

P1 Test Ave. Results = 6.82 Lb/Hr 0.92 Lb/Ton Lb (92% wet) Limit = 4.0 Lb/Hr or 0.4 Lb/Ton Lb gas wet

In Compliance? Y (N)

P2 Test Ave. Results = _____ Limit = _____

In Compliance? Y N

P3 Test Ave. Results = _____ Limit = _____

In Compliance? Y N

P4 Test Ave. Results = _____ Limit = _____

In Compliance? Y N

#hydrator

PARTICULATE CHECKLIST

Name of Source: Rockwell Lime Test Date: 12/03/1999

Man: Fowoc, WI

1. Are the isokinetics per run between 90 and 110%? YES ✓ NO__
   If the %I for a run is outside the range, void the run. See 5.

2. Is the sample volume per run ≥ 30 DSCF? YES ✓ NO__
   If the sample volume for a run is < 30 DSCF, void the run. See 5.

3. Is the sample time per run ≥ 60 min.? YES ✓ NO__
   If the sample time for a run is < 60 min., void the run. See 5.

4. Is the sample time per sample point ≥ two min.? YES ✓ NO__
   If the sample time per point for a run is < two min., void the run. See 5.

5. A stack test shall consist of three valid runs or, at a minimum, two valid runs if one run is voided. Is this a valid test? YES ✓ NO__
   If no, inform the District or the source that the test is unacceptable and should be redone. Your review is over.

6. Is the total particulate per run added correctly? YES ✓ NO__
   If an incorrect total is found, correct the total and the results or call the consultant and ask for a correction.

7. Was the backhalf included in the total particulate? YES ✓ NO__
   NSPS sources are exempt from including the backhalf. All other sources must include the backhalf. If they don't, the test is invalid. See 5.

Eq. 1 Gr/DSCF = 15.43* g of part./sample volume of run in DSCF

Eq. 2 Gr/DSCF @ 12% CO_2 = (Gr/DSCF)*12/Stack CO_2

Eq. 3 Gr/DSCF @ 7% O_2 = (Gr/DSCF)*(20.9-7)/(20.9-Stack O_2)

Eq. 4 Lb/DSCF = (Gr/DSCF)/7000 Eq. 5 $Lb/MLb_{DRY} = 385.6*10^3*(Lb/DSCF)/MW_{DRY}$

Eq. 6 $Lb/MLb_{WET} = 385.6*10^3*(Lb/DSCF)*(1-(\%\ Moisture/100))/MW_{WET}$

Eq. 7 Lb/Hr = 60*DSCFM*(Lb/DSCF) Eq. 8 $Lb/10^6$ BTU = (Lb/Hr)/(10^6 BTU/Hr)

Eq. 9 $Lb/10^6$ BTU = (Lb/DSCF)*F Factor*20.9/(20.9-Stack O_2)

---

8. If the emission limit is in Gr/DSCF, Lb/DSCF, Lb/MLb, Lb/Hr or $Lb/10^6$ BTU, solve the needed Eq. Do your results match the consultant's? YES ✓ NO__
   If no, fix the problem or call the consultant for a correction.

9. Is the three run(or two run) average correct? YES ✓ NO__
   If no, write in the correct average.

10. Is the average result in compliance? YES__ NO ✓
    If no, the District should issue an NOV.

11. Was the source operating at a level representative of full capacity? YES ✓ NO__
    If no, the permit release may need to provide conditions to cap the source at the test level until a stack test at a higher production level(showing compliance) is performed. If the test was not for permit release, other actions may be warranted.

2.0 SUMMARY OF RESULTS

The results of the particulate emissions testing performed on the lime hydrator stack are presented in **Table 2-1.** Detailed results of all of the testing completed on this location are located in **Appendix A.** The field data and the analytical results are presented in **Appendix B** and **C**, respectively. Calibration sheets and equipment performance checks are presented in **Appendix D**, along with the QA/QC supporting documentation from the analytical laboratory.

A cyclonic flow check was performed at the sampling location to determine the existence of abnormal flow. The observed average yaw angle for the secondary unit location was 4^{o}. Section 2.5 of EPA Method 1 indicates that a sampling location with an average yaw angle of $\leq 20^{o}$ is acceptable.

TABLE 2-1

SUMMARY OF METALS & PARTICULATE RESULTS
ACME DIE CASTING, INC.
March 10, 1999

Location	Test Parameter	Average Result	Specification
Lime Hydrator Stack	lb Total Particulate/Hr	6.85	WDNR Specification
	lb Total Particulate/Ton	0.62	WDNR Specification
	lb Total Particulate/1000 lb	0.31	WDNR Specification
	lb Front Half /Hr	6.82	
	lb Back Half/Hr	0.021	
	Flow rate DSCFM	2,052	

RMC Environmental, Inc.
Emissions Testing & Consulting

Plant: Rockwell Lime Date: 12/09/99
Project #: 99-RLC-311
Location: Lime Hydrator

Sample Identification			LH-M5-01	LH-M5-02	LH-M5-03
Test Date			12/03/99	12/03/99	12/03/99
Start			823	1035	1315
Finish			927	1140	1420
Total			60	60	60
Cp	Pitot Coefficient	(CF)	0.84	0.84	0.84
A	Area of stack	sq. inches	530.93	530.93	530.93
Pbar	Barometric Pressure	(in HG)	29.74	29.73	29.75
Wm	Volume of Condensate	(mg)	839	834	813
Ts	Temperature of Effluent	(F)	181.6	181.3	183.9
Pavg	Average Delta P		0.124	0.115	0.101
Pg	Static Pressure	(in H2O)	0.09	0.08	0.09
DH	Delta H, Orifice pressure differential	(in H2O)	1.54	1.58	1.40
Tm	Meterbox Temperature	(F)	99.5	102.8	103.6
Vm	Volume of sample metered	(CF)	40.147	40.223	38.035
Y	Meter correction factor		1.012	1.012	1.012
Dn	Nozzle Diameter	(in)	0.456	0.456	0.456
CO2	Percent Carbon Dioxide	(%)	2.50	2.20	2.50
O2	Percent Oxygen	(%)	16.00	16.50	16.90
CO	Percent Carbon Monoxide	(%)	0	0	0
N2	Percent Nitrogen	(%)	81.50	81.30	80.60
Ms	Molecular Weight (wet)	(lb/lb-m)	23.43	23.42	23.36
Laboratory Results					
	Filter	(g)	0.8536	0.8642	0.8725
	Front Half	(g)	0.0727	0.0776	0.0838
	Back Half (Organics & Inogranics)	(g)	0.0032	0.0023	0.0031
	Total Particulate	(g)	0.9295	0.9441	0.9594
Ps	Absolute pressure of Flue Gas	(in HG)	29.75	29.74	29.76
Vwstd	Volume of Water Vapor	(SCF)	39.56	39.32	38.33
Vmstd	Volume of Metered Gas	(DSCF)	38.240	38.079	35.965
M	Moisture	(%)	50.85	50.80	51.59
Vs	Velocity	(FPS)	24.24	23.37	21.96
Qaw	Volumetirc Flow	(ACFM)	5,363	5,170	4,859
Qsd	Volumetric Flow	(DSCF)	2,157	2,081	1,918
	Particulate Concentration	(mg/DSCM)	0.86	0.88	0.94
	Total Particulate Concentration	(lb/Hr)	6.9351	6.8255	6.7686 AVG 6.84
	Front Half Particulate Concentration	(lb/Hr)	6.9112	6.8069	6.7467
	Back Half Particulate Concentration	(lb/Hr)	0.0239	0.0166	0.0219
	Emission Rate	lb Particulate / ton	0.63	0.59	0.64
	Emission Rate	lb Particulate/ 1000	0.32	0.30	0.32
I	Isokenetic	(%)	96.06	99.14	101.59

Rockwell Lime Company
4110 Rockwood Road
Manitowoc, WI 54220
(920) 682-7771
Fax: (920) 682-7972

fax transmittal

to:	Ms. Rachel Chieborowicz - RMC Environmental, Inc.
fax:	(815) 226-9542
from:	Don Brisch
date:	January 31, 2000
re:	Production Information from Stack Test on 12/3/99
pages:	1, including cover sheet.

NOTES: Rachel,

The following production numbers are stated in terms of each test run and not a per hour rate.

Stack Test Run No.	Quicklime Used	Hydrate Produced
1	11.00 Tons	14.00 Tons
2	11.51 Tons	14.65 Tons
3	10.55Tons	13.42 Tons

Ave. 14.0 Tons/Hr

Method 5 - Particulates	Checklist			
	Run: 1	Run: 2	Run: 3	
Isokinetics	Good	Good	Good	
Sample Volume (dscf)	Good	Good	Good	
Sample Time Per run:	Good	Good	Good	
Per point:	Good	Good	Good	
Operating at Full Capacity?	NO	NO	NO	
Compliance	No			6.81942

Permit # and Date	99-JCH-139	12/14/1999
Limit or Regulation	4.000	lb/hr

Production Data:				
Rated Full Capacity	20			tons/hr
Operating Rate during test	14	14	14	tons/hr
Percent of Full Capacity	70.0	70.0	70.0	% of rated full capacity

Name of Facility Rockwell Lime **Test Date** 12/03/1999

S13A/P38
Method 5 - Particulates

	Run: 1	Run: 2	Run: 3	Averages	
Barometric Pressure (PB):	29.75	29.73	29.72	29.73	Inches Hg
Stack Static Pressure:	0.09	0.09	0.09	0.09	Inches H20
Stack Pressure (PS):	29.76	29.74	29.73	29.74	Inches Hg
Orifice Pressure (OP) or delta H:	1.54	1.58	1.38	1.50	Inches Hg Abs.
Volume H20 CONDENSED (VLc):	839.00	834.00	813.00	828.67	mL condensed
Volume H20 in SILICA GEL (VLsg):					mL in silica gel
Total Volume H20 in impingers (VL):	839.00	834.00	813.00	828.67	mL total
Total particulate mass (MT):	0.9295	0.9441	0.9594	0.9443	Grams
Test Time (T):	60.00	60.00	60.00	60.00	Minutes
Number of Points:	24.00	24.00	24.00	24.00	Points
Time per point:	2.50	2.50	2.50	2.50	Minutes
% 02:	20.50	20.50	20.50	20.50	%
% CO2:					%
% CO					%
% N2:	79.50	79.50	79.50	79.50	%
Pitot tube coefficient (CP):	0.84	0.84	0.84	0.84	(dimensionless)
Stack Temperature Avg. (TS):	181.58	181.38	183.92	182.29	Deg. F
Stack Temperature (TS): Rankine	641.25	641.05	643.59	641.96	Deg. R
Meter Temperature Avg. (TM):	99.46	102.79	103.67	101.97	Deg. F
Meter Temperature (TM): Rankine	559.13	562.46	563.34	561.64	Deg.R
Gas Meter Volume (VM):	40.15	40.22	38.04	39.47	Cubic Feet
Nozzle Diameter:	0.46	0.46	0.46	0.46	Inches
Nozzle Area (AN):	0.00	0.00	0.00	0.00	Square Feet
Stack Area (AS):	3.69	3.69	3.69	3.69	Square Feet
Dry Gas Meter correction factor (Y):	1.01	1.01	1.01	1.01	(dimensionless)
F-factor:					DSCF/10^6 BTU
Sqr Rt Velocity Pressure Avg (VP^.5):	0.35	0.34	0.32	0.34	Inches H20
Heat Input (H):					MMBTU/Hr

Dry Gas Meter Volume (VMSTD):	38.27	38.09	35.94	37.43	Dry Standard Cubic Feet
Condensed H20 Volume (VWSTD):	39.49	39.26	38.27	39.01	Wet Standard Cubic Feet
% Moisture:	50.79	50.75	51.57	51.04	%
Mole Fraction (MD):	0.49	0.49	0.48	0.49	Fraction
Dry Molecular Weight (MWD):	28.82	28.82	28.82	28.82	Lb/Lb-mole dry stack gas
Wet Molecular Weight (MWS):	23.32	23.33	23.24	23.30	Lb/Lb-mole wet stack gas
Stack Gas Velocity Avg (VS):	24.28	23.41	22.02	23.24	Feet/Second
Actual Stack Flow Rate (QACT):	5376.59	5182.90	4875.40	5144.96	ACF/M
Dry Stack Flow Rate (QSTD):	2165.48	2088.18	1923.33	2059.00	DSCF/M
% Excess Air	4200.82	4200.82	4200.82	4200.82	%
Part. Mass Rate-Areas Method(PMRA):	6.67	6.77	6.88	6.77	Lbs/Hr
Part. Mass Rate-Conc. Method (PMRC):	6.96	6.85	6.79	6.87	Lbs/Hr
Part. Mass Rate-Average (PMRAVG):	6.81	6.81	6.84	6.82	Lbs/Hr
Part. Emisson Concentration (C):	0.37	0.38	0.41	0.39	GR/DSCF
Emission rate Avg (E):					lb/10^6 BTU Input
Dry Stack Gas Mass Flow Rate (DGR):	9711.24	9364.61	8625.31	9233.72	lbs. of dry gas/hr
Emisson Rate Avg-dry gas (LB/MLBD):	0.70	0.73	0.79	0.74	lb/10^3 lb of dry gas
Wet Stack Gas Mass Flow Rate (WGR):	7864.55	7585.03	6959.66	7469.75	lb of wet gas/hr
Emisson Rate Avg-wet gas (LB/MLBW):	0.87	0.90	0.98	0.92	lb/10^3 of wet gas
Emission Rate by Fuel Factor (EF):					lb/10^6 BTU Input
EF (fronthalf only)	#VALUE!	#VALUE!	#VALUE!	#VALUE!	lb/10^6 BTU Input
% Isokinetics (90% < Iso < 110%)	95.83	98.92	101.32	98.69	%

FIELD DATA

RUN 1 Point No.	Velocity Head VP in. H20	Sqrt Velocity VP^.5 in. H20	Orifice H in. H20	Stack Temp. TS deg. F	Meter Temp. TM	
					Inlet deg. F	Outlet deg. F
1	0.12	0.346	1.50	182	90	90
2	0.13	0.361	1.60	183	91	91
3	0.12	0.346	1.50	182	92	90
4	0.14	0.374	1.70	182	93	91
5	0.13	0.361	1.60	180	94	92
6	0.12	0.346	1.50	181	96	94
7	0.11	0.332	1.40	182	98	96
8	0.15	0.387	1.80	182	98	96
9	0.12	0.346	1.50	181	99	97
10	0.14	0.374	1.70	182	100	98
11	0.13	0.361	1.60	182	100	98
12	0.12	0.346	1.50	181	101	99
13	0.10	0.316	1.20	180	102	100
14	0.13	0.361	1.60	181	102	100
15	0.12	0.346	1.50	181	103	101
16	0.10	0.316	1.20	181	104	102
17	0.14	0.374	1.70	181	104	102
18	0.13	0.361	1.60	181	105	103
19	0.12	0.346	1.50	181	105	103
20	0.13	0.361	1.60	182	106	104
21	0.15	0.387	1.90	183	106	104
22	0.12	0.346	1.50	182	106	104
23	0.11	0.332	1.40	182	107	105
24	0.10	0.316	1.30	183	107	105
	VP	VP^.5	OP	TS	TM	
AVG.	0.12	0.35	1.54	181.58	99.5	

RUN 2 Point No.	Velocity Head VP in. H20	Sqrt Velocity VP^.5 in. H20	Orifice H in. H20	Stack Temp. TS deg. F	Meter Temp. TM Inlet deg. F	Outlet deg. F
1	0.17	0.412	2.30	181	101	98
2	0.16	0.400	2.16	181	100	98
3	0.15	0.387	2.03	181	101	99
4	0.14	0.374	1.89	181	101	99
5	0.13	0.361	1.76	181	101	99
6	0.12	0.346	1.63	181	102	100
7	0.12	0.346	1.63	181	104	98
8	0.13	0.361	1.76	182	104	98
9	0.11	0.332	1.49	181	105	99
10	0.09	0.300	1.23	181	106	100
11	0.08	0.283	1.09	181	107	101
12	0.08	0.283	1.09	181	107	101
13	0.12	0.346	1.64	181	107	101
14	0.12	0.346	1.64	182	108	102
15	0.13	0.361	1.77	182	108	102
16	0.08	0.283	1.09	182	108	102
17	0.09	0.300	1.23	181	109	103
18	0.11	0.332	1.51	181	109	103
19	0.13	0.361	1.78	182	110	104
20	0.12	0.346	1.63	182	105	100
21	0.12	0.346	1.63	182	105	101
22	0.10	0.316	1.36	182	105	101
23	0.09	0.300	1.22	182	105	101
24	0.10	0.316	1.36	181	105	101
	VP	VP^.5	OP	TS	TM	
AVG.	0.12	0.34	1.58	181.38	102.8	

RUN 3 Point No.	Velocity Head VP in. H20	Sqrt Velocity VP^.5 in. H20	Orifice H in. H20	Stack Temp. TS deg. F	Meter Temp. TM	
					Inlet deg. F	Outlet deg. F
1	0.09	0.300	1.23	182	100	100
2	0.05	0.224	0.65	183	100	100
3	0.10	0.316	1.35	184	101	100
4	0.08	0.283	1.08	184	101	100
5	0.10	0.316	1.35	184	100	100
6	0.12	0.346	1.62	183	100	100
7	0.14	0.374	1.89	184	102	100
8	0.12	0.346	1.62	184	105	100
9	0.10	0.316	1.35	184	104	100
10	0.09	0.300	1.22	184	104	102
11	0.08	0.283	1.22	184	104	102
12	0.09	0.300	1.22	184	104	102
13	0.09	0.300	1.22	184	106	103
14	0.11	0.332	1.36	184	109	101
15	0.12	0.346	1.64	185	109	101
16	0.15	0.387	2.04	185	109	101
17	0.13	0.361	1.76	185	109	101
18	0.11	0.332	1.50	184	110	102
19	0.11	0.332	1.50	185	110	102
20	0.09	0.300	1.23	185	111	103
21	0.09	0.300	1.23	184	111	103
22	0.10	0.316	1.35	184	111	103
23	0.11	0.332	1.50	184	111	103
24	0.08	0.283	1.10	183	112	104
	VP	VP^.5	OP	TS	TM	
AVG.	0.10	0.32	1.38	183.92	103.7	

LMD-01-06-007

Department of Natural Resources

* Test Was Aborted

OBSERVER CHECKLIST FOR PARTICULATE STACK TESTS
Form 4500-32 Rev. 11-94

Date: 10/12/99

Name of Company: Rockwell Lime
Telephone Number (Include Area Code): ( )
Address: 410 Rockwood Rd
FID Number: 436034390
City, State, Zip Code: Manitowoc, WI
Name of Contacts: Don Brisch
Title:

Name of Company Conducting Test: EMT
Address:
City, State, Zip Code:

Name of Test Crew Chief: Jeff Berg
Telephone Number (Include Area Code): (847) 967 6666
Regulation: NR 439.03
Stack Number: S13
Process Number: P38

Description of Process: Pressure Hydrator

Permit Number: Issued: Year Installed:

Capacity of Process:

Normal Capacity or Production Rate: 11 tph QL feed Certified By:

Operating Conditions of Process: 1232 °F | 70.94 ton feed/hr | 131 psi | 433 | 2447

Process Weight Rate (T/HR): 147 | 84.75 | 130 | 132 psig

Production Rate: set @ 13.8 | tons 11 TPH

QL = quicklime

Description of Air Pollution Control Equipment

→ Joe Perez AM/7

	Run 1	Run 2	Run 3
Δ P Across Collector ($IN H_2O$):			

Filters probe wash — cyclone catch single wall

⇒ FILES

OCT-13-99 WED 12:08 PM

Description of Test Method

Method 5 + 202 SS probe

check pH in lab

Calibration Data

Pitot Cp: .84 Date: 7/99

DGMY Factor: 1.012 Date: 9/99

Orifice ΔH@: 1.955 Date: 9/99

Sampling Data

Number of Sampling Points: 24 Number of Ports: 2 Stack Diameter: 26"

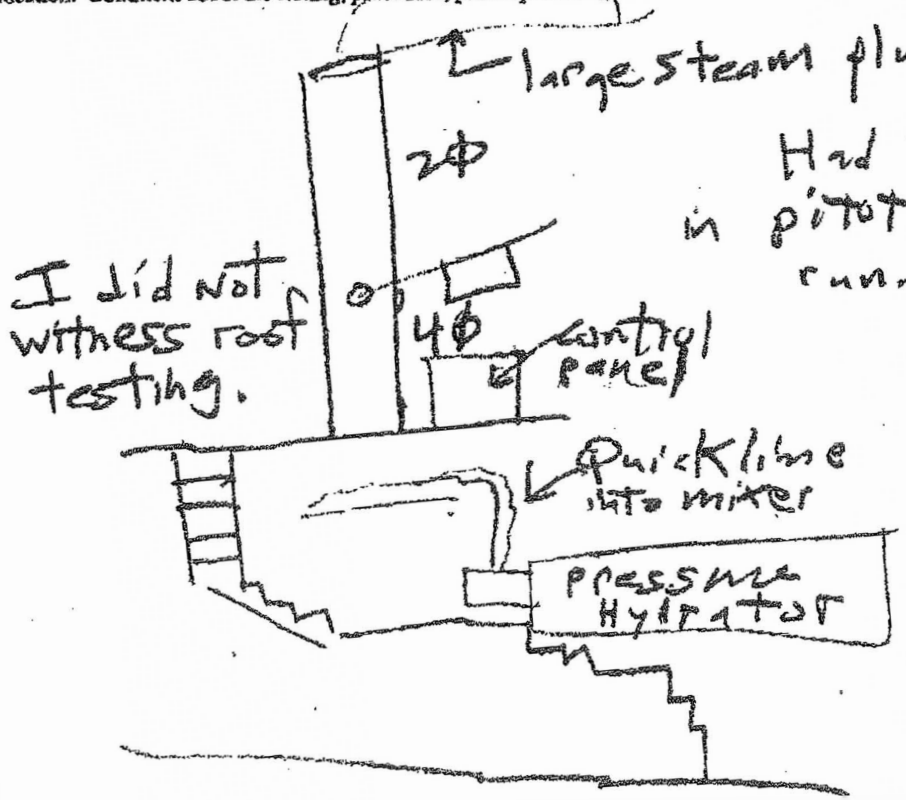
Duct Dimensions: Gas Sample Method: Integrated: Grab:

Gas Sample Analysis Method: Firite Filter Media:

Orsat Leak Check: Orsat O_2 Check: Pitot, Nozzle Alignment Check:

Moisture Determination: Condensation: 47% M Wet-Dry Bulb:

Sketch sampling location (indicate distance upstream and downstream from flow disturbances) and sketch cross sections of duct at sampling location. Comment about the testing, procedure, plant operations, etc.



Had to blow out water in pitot lines during run.

I did not witness roof testing.

Observer Name/Phone Number James Cranford 920 492-5794

Department of Natural Resources

OBSERVER CHECKLIST FOR PARTICULATE STACK TESTS
Form 4500-32A 11-94

Name of Company	Stack Number	Process Number
Rockwell Lime	513	P32

	Run 1	Run 2	Run 3
Date of Test:	10/12/99		
Weather			
Sky Conditions:	overcast	Blue	
Wind Speed (MPH):			
Wind Direction:			
Ambient Temperature (°F):			
Leak Checks			
Train Before Test:	0@15	0@25"Hg	
Train After Test:	0@25 ✓	0@25"Hg ✓	
Pitot Lines Before Test:	✓	✓	
Pitot Lines After Test:	✓	✓	
Stack Data			
Average Velocity Traverse Δ P(IN H_2O):	.09-.16 Avg=.133	.02-.19	
Stack Static Pressure (± IN H_2O):	-.07	-.09	
Stack Temperature (°F):	153-177	141-179	
Percent Moisture:	47	47%	
Percent Opacity:		steam plume	
Test Data			
Start and Stop Time of Run:	1227 143	249 426	
Total Number of Sampling Points:	24	24	
Sampling Time Per Point (MIN):	2.5	2.5	
Sampling Time Per Run (MIN):	60 min	60 min.	
Nozzle Diameter (IN):	.495	.435	
Percent CO_2:			
Percent O_2:			
Percent CO:			
Sample Volume Per Run (DCF):	633.32 581.7 51.43	671.35 635.27 36.08	

P.3

36.08

OCT-13-99 WED 12:08 PM

Sandberg, Brian J

From: Crawford, James G
Sent: Wednesday, June 13, 2001 4:31 PM
To: Sandberg, Brian J
Subject: RE:

The test was aborted so there is no report to review.

From: Sandberg, Brian J
Sent: Wednesday, June 13, 2001 3:26 PM
To: Crawford, James G

Jim,

I have a witness form from you dated 10/12/1999 for Rockwell Lime (S13,P38). There is, however, no record of it in WACD. Was this test reviewed and if so can I have a copy sent?

Thanks,
Brian Sandberg